

What is Claimed Is:

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1. A lubricant composition comprising a derivatized perfluoropolyether compound including a generally linear perfluoropolyether chain and at least one Hindered Amine Light Stabilizer ("HALS") moiety at at least one end of said chain.

2. The lubricant composition as in claim 1, comprising at least one said HALS moiety at each end of said generally linear perfluoropolyether chain.

3. The lubricant composition as in claim 1, wherein said at least one HALS moiety is attached to said at least one end of said generally linear perfluoropolyether chain *via* a chemical bond between a reactive group at said at least one end of said chain and a reactive group of said HALS moiety.

4. The lubricant composition as in claim 3, wherein said at least one HALS moiety is a piperidine derivative having a reactive group selected from amino (-NH<sub>2</sub>), hydroxyl (-OH), carboxylic ester (-COOR), and carboxylic chloride (-COCl) groups.

5. The lubricant composition as in claim 4, wherein said piperidine derivative is a 2,6-tetramethyl-piperidine and said reactive group is at the 4-position thereof.

6. The lubricant composition as in claim 3, wherein said generally linear perfluoropolyether chain comprises a plurality of  $-(C_xF_{2x}O)_n-$  repeating units, wherein x in each unit is independently an integer from 1 to about 10 and n is an integer from about 10 to about 30.

7. The lubricant composition as in claim 6, wherein said generally linear perfluoropolyether chain comprises at least one reactive group selected

from ester (-COOR), alcohol (-COH), carboxylic acid (-COOH), and carboxylic chloride (-COCl) groups at said at least one end of said chain

8. The lubricant composition as in claim 1, further comprising a solvent for said derivatized perfluoropolyether compound.

9. A data/information storage and retrieval medium, comprising:

(a) a substrate including a layer stack thereon, said layer stack including a surface and at least one magnetic or magneto-optical ("MO") recording layer; and

5 (b) a thin film or layer of a lubricant formed on said surface, comprised of a derivatized perfluoropolyether compound including a generally linear perfluoropolyether chain and at least one Hindered Amine Light Stabilizer ("HAS") moiety at at least one end of said chain.

10. The medium according to claim 9, wherein:

said derivatized perfluoropolyether compound includes said generally linear perfluoropolyether chain and a said HALS moiety at each end thereof.

11. The medium according to claim 9, wherein said at least one HALS moiety is attached to said at least one end of said generally linear perfluoropolyether chain *via* a chemical bond between a reactive group at said at least one end of said chain and a reactive group of said HALS moiety.

12. The medium according to claim 11, wherein said at least one HALS moiety is a piperidine derivative having a reactive group selected from amino (-NH<sub>2</sub>), hydroxyl (-OH), carboxylic ester (-COOR), and carboxylic chloride (-COCl) groups.

13. The medium according to claim 12, wherein said piperidine derivative is 2,6-tetramethyl-piperidine and said reactive group is at the 4-position thereof.

14. The medium according to claim 11, wherein said generally linear perfluoropolyether chain comprises a plurality of  $-(C_xF_{2x}O)_n-$  repeating units, wherein x in each unit is independently an integer from 1 to about 10 and n is an integer from about 10 to about 30.

15. The medium according to claim 14, wherein said generally linear perfluoropolyether chain comprises at least one reactive group selected from ester (-COOR), alcohol (-COH), carboxylic acid (-COOH), and carboxylic chloride (-COCl) groups at said at least one end of said chain

16. The medium according to claim 9, wherein said substrate (a) is disk-shaped and said surface of said layer stack comprises a carbon (C)-based protective overcoat material.

17. A method of manufacturing a data/information storage retrieval medium, comprising steps of:

(a) providing a substrate including a layer stack thereon, said layer stack including a surface and at least one magnetic or magneto-optical ("MO") recording layer; and

(b) forming a thin film or layer of a lubricant on said surface of said layer stack, comprised of a derivatized perfluoropolyether compound including a generally linear perfluoropolyether chain and at least one Hindered Amine Light Stabilizer ("HALS") moiety at at least one end of said chain.

18. The method according to claim 17, wherein:

step (b) comprises forming a thin film or layer of a lubricant comprised of said derivatized perfluoropolyether compound including said generally linear perfluoropolyether chain and a said HALS moiety at each end thereof.

19. The method according to claim 17, wherein:

step (b) comprises forming a thin film or layer of a lubricant comprised of said derivatized perfluoropolyether compound wherein said at least one HALS moiety<sub>1</sub> is attached to said at least one end of said generally linear perfluoropolyether chain *via* a chemical bond between a reactive group at said at least one end of said chain and a reactive group of said HALS moiety.

20. The method according to claim 19, wherein:

step (b) comprises forming a thin film or layer of a lubricant comprised of said derivatized perfluoropolyether compound wherein said at least one HALS moiety is a piperidine derivative having a reactive group selected from amino (-NH<sub>2</sub>), hydroxyl (-OH), carboxylic ester (-COOR), and carboxylic chloride (-COCl) groups.

21. The method according to claim 20, wherein said piperidine derivative is a 2,6-tetramethyl-piperidine and said reactive group is at the 4-position thereof.

22. The method according to claim 19, wherein:

step (b) comprises forming a thin film or layer of a lubricant comprised of a derivatized perfluoropolyether compound including a generally linear perfluoropolyether chain comprised of a plurality of  $-(C_xF_{2x}O)_n-$  repeating units, wherein x in each unit is independently an integer from 1 to about 10 and n is an integer from about 10 to about 30.

23. The method according to claim 22, wherein:

step (b) comprises forming a thin film or layer of a lubricant comprised of a derivatized perfluoropolyether compound including a generally linear perfluoropolyether chain comprising at least one reactive group selected from ester (-COOR), alcohol (-COH), carboxylic acid (-COOH), and carboxylic chloride (-COCl) groups at said at least one end of said chain.

24. The method according to claim 17, wherein:

step (a) comprises providing a disk-shaped substrate and said surface of said layer stack comprises a carbon (C)-based protective overcoat material.

25. The method according to claim 17, wherein:

step (b) comprises submerging said substrate with said layer stack thereon in a solution comprising said derivatized perfluoropolyether compound in a solvent and withdrawing said substrate with said layer stack thereon from said  
5 solution to form said thin film or layer of said lubricant on said surface of said layer stack.

26. A method of synthesizing a derivatized perfluoropolyether compound useful as a lubricant stabilized against Lewis acid-catalyzed decomposition when utilized as a thin film lubricant layer of a thin film data/information storage and retrieval media, comprising steps of:

5 (a) providing a precursor perfluoropolyether compound including a generally linear perfluoropolyether chain having at least one reactive group at at least one end of said chain; and

(b) reacting said at least one reactive group of said precursor compound with a reactive group of a Hindered Amine Light Stabilizer ("HALS")  
10 compound to form a generally linear derivatized perfluoropolyether compound having a HALS moiety at said at least one end of said chain.

27. The method according to claim 26, wherein:

step (b) comprises reacting a reactive group at each end of said precursor compound with a reactive group of a said HALS compound to form a generally linear derivatized perfluoropolyether compound having a said HALS moiety at  
5 each end of said chain.

28. The method according to claim 26, wherein:

step (a) comprises providing a precursor perfluoropolyether compound including a generally linear perfluoropolyether chain having at least one reactive group selected from ester (-COOR), alcohol (-COH), carboxylic acid (-COOH), and carboxylic chloride (-COCl) groups at said at least one end of said chain; and

5 step (b) comprises reacting said at least one reactive group of said precursor with a HALS compound comprising a reactive group selected from amino (-NH<sub>2</sub>), hydroxyl (-OH), carboxylic ester (-COOR), and carboxylic chloride (-COCl) groups.

29. The method according to claim 28, wherein:

step (a) comprises providing a precursor perfluoropolyether compound having a generally linear chain comprised of a plurality of -(C<sub>x</sub>F<sub>2x</sub>O)<sub>n</sub>- repeating units, wherein x in each unit is independently an integer from 1 to about 10 and n is an integer from about 10 to about 30; and

5 step (b) comprises reacting said at least one reactive group of said precursor compound with a HALS compound in the form of a 2,6-tetramethyl-piperidine with said reactive group thereof at the 4-position.

30. A data/information storage and retrieval medium, comprising:

(a) a substrate including a layer stack thereon, said layer stack including a surface and at least one magnetic or magneto-optical ("MO") recording layer; and

5 (b) chemically stabilized means for lubricating said surface of said layer stack.